

AMENDMENT UNDER 37 C.F.R. § 1.111
Application No.: 10/591,591

Attorney Docket No.: Q96927

AMENDMENTS TO THE DRAWINGS

Submitted herewith are five (5) replacement sheets containing replacement FIGS. 1-10 in compliance with 37 C.F.R. § 1.84. In addition to replacement FIGS. 1-10, the replacement sheets also contain new FIG. 11, also in compliance with 37 C.F.R. § 1.84. The Examiner is respectfully requested to acknowledge receipt of these drawings.

Attachment: Five (5) Replacement Sheets

REMARKS

Preliminary Matters and Status of the Application

First, Applicant thanks the Examiner for considering all of the references listed on the Information Disclosure Statements filed on September 5, 2006, and July 16, 2007. Applicant further thanks the Examiner for acknowledging Applicant's claim for foreign priority, and indicating receipt of all priority documents.

The drawings have been objected to. Specifically, it is alleged that the drawings fail to show the plurality of second electrodes recited in claim 52, or the stress birefringent material and actuator of claim 61.

The Specification has also been objected to. Specifically, it is alleged that the Abstract is directed solely to a transmission filter apparatus, while the claims are also directed to an illumination system including such a transmission filter apparatus.

Claims 40-76 are all the claims pending in the Application. Claims 40-50, 67-71 and 74-76 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Boettinger et al. (U.S. Publication 2003/0044701, hereinafter "Boettinger") in view of Oakley (U.S. Patent 6,545,968, hereinafter "Oakley").

Claims 51-60 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Boettinger in view of Oakley as applied to claim 48 above, and further in view of Noonan (U.S. Publication 2004/0008397, hereinafter "Noonan").

Claims 61-66 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Boettinger in view of Oakley as applied to claim 40 above, and further in view of Brunotte et al (WO 02/093257 disclosed by Applicant on July 16, 2007 and using U.S. publication of its continuation, 2004/0150806 as a translation, hereinafter "Brunotte").

Applicant notes that no grounds of rejection have been presented for claims 72 and 73. Applicant respectfully requests that the allowability of these claims be indicated in the next Office communication.

Objections to the Drawings

Submitted herewith are five (5) replacement sheets containing replacement FIGS. 1-10 in compliance with 37 C.F.R. § 1.84. In addition to replacement FIGS. 1-10, the replacement sheets also contain new FIG. 11, also in compliance with 37 C.F.R. § 1.84.

The drawings have been objected to for allegedly failing to depict the plurality of second electrodes recited in claim 52, and the stress birefringent material and actuator of claim 61. With regards to the plurality of second electrodes, Applicant submits that the plurality of second electrodes are now depicted in FIG. 11. Support for FIG. 11 can be found in paragraph [0018] of the Specification as filed. Accordingly Applicant requests that the objection be withdrawn. With regards to the stress birefringent materials and actuator of claim 61, Applicant submits that FIGS. 9 and 10 depict these features, and directs the Examiner's attention to thin plate 920 and actuators 931-938. Accordingly, Applicant respectfully requests that the objection be withdrawn.

Objections to the Specification

The Abstract has been objected to for allegedly being directed solely to a transmission filter apparatus, and failing to recite an illumination system containing such a transmission filter. Applicant submits that the amended Abstract as set forth above is directed to both a transmission filter apparatus and an illumination system. Accordingly, Applicant respectfully requests that the objection be withdrawn.

Claim Rejections

Claims 40-50, 67-71 and 74-76 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Boettinger in view of Oakley. Applicant respectfully traverses the rejection for the following reasons.

Claim 40 recites (in part):

An illumination system for a microlithography projection exposure machine for illuminating an illumination field with light from a primary light source, comprising:

a pupil shaping unit configured to produce a prescribed light distribution in a pupil plane of the illumination system;

a transmission filter apparatus configured for spatially dependent intensity filtering of an incident light distribution, the transmission filter apparatus being arranged at or in a vicinity of the pupil plane of the illumination system or at or in a vicinity of a further pupil plane conjugate to the pupil plane;

wherein the transmission filter apparatus includes at least one retardation device configured to be operated in transmission to produce a spatially dependent retarding effect on the light of the incident light distribution, where the retardation device is configured to be driven to produce a temporally variable, spatially dependent retarding effect; and

at least one polarization filter arrangement arranged in a light path downstream of the retardation device.

Applicant submits that, even if combined, Boettinger and Oakley fail to disclose all of the above recited features of claim 40, and would have failed to render the recitations obvious at the time of invention.

The grounds of rejection allege that all features except for the recited polarization filter are disclosed in Boettinger. Applicant respectfully disagrees. First, as indicated above, claim 40 recites “a pupil shaping unit configured to produce a prescribed light distribution in a pupil plane of the illumination system.” Claim 40 further recites that the transmission filter apparatus is “arranged at or in a vicinity of the pupil plane of the illumination system or at or in a vicinity of a further pupil plane conjugate to the pupil plane.” In contrast to these recitations, Boettinger discloses a lens system 123, the alleged pupil shaping unit, which is downstream from adaptive

structure 140, the alleged transmission filter apparatus. Accordingly, Applicant submits that Boettinger cannot possibly disclose the transmission filter apparatus “arranged at or in a vicinity of the pupil plane.” Assuming *arguendo* that the lens system 123 does correspond to the recited pupil shaping unit, any alleged transmission filter would have to be “at or in a vicinity of” the pupil plane in which the pupil shaping unit “produce[s] a prescribed light distribution,” or at or in a vicinity of a “further pupil plane conjugate to the pupil plane.” Because the lens system is downstream from the adaptive structure 140, adaptive structure 140 cannot possibly be “at or in the vicinity of the pupil plane” in which lens system 123 produces its light distribution. Furthermore, Applicant submits that the location of the alleged transmission filter, adaptive structure 140, is not “at or in a vicinity of a further pupil plane conjugate to the pupil plane.” Applicant further submits that Oakley fails to remedy this deficiency in Boettinger, and therefore, the combination fails to disclose every recitation of claim 40, nor would it have rendered the recitations obvious.

Applicant further submits that the combination of Boettinger and Oakley fails to render obvious the recitation of “at least one polarization filter arrangement arranged in a light path downstream of the retardation device.” First, the grounds of rejection concede that Boettinger fails to disclose this recitation of claim 40. Applicant submits that Oakley fails to remedy this deficiency in Boettinger for *at least* the following reasons. Applicant notes that the “at least one polarization filter arrangement” is included in the transmission filter apparatus. This is very different from the polarizing beam splitter 106 described in Oakley. The polarizing beam splitter in Oakley is not part of any alleged transmission filter, but is instead placed downstream from the system modulator depicted in FIG. 2 of Oakley. Accordingly, Applicant submits that the combination of Boettinger and Oakley would not have rendered a “transmission filter apparatus includ[ing] ... at least one polarization filter arrangement arranged in a light path downstream of the retardation device” obvious at the time of invention.

For *at least* the reasons stated above, Applicant submits that claim 40 patentably distinguishes over the combination of Boettinger and Oakley. Applicant further submits that

claims 41-50, 67-71 and 74-76 patenably distinguish over the combination of Boettinger and Oakley due *at least* to their dependence on claim 40.

Applicant further submits that Noonan fails to remedy the above-described deficiencies in Boettinger and Oakely, and that claims 51-60 patentably distinguish over the cited art. Finally, Applicant submits that Brunotte fails to remedy the above described deficiencies in Boettinger and Oakley, and therefore claims 61-66 patentably distinguish over the cited art.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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